Message

From: bounce-39895165-62701352@listserv.unc.edu [bounce-39895165-62701352@listserv.unc.edu]
on behalf of Occupational & Environmental Medicine for Clinicians & Public Health Professionals digest [occ-env-med-l@listserv.unc.edu]
Sent: 3/30/2018 4:29:49 AM
To: occ-env-med-l digest recipients [occ-env-med-l@listserv.unc.edu]
Subject: [SPAM-Sender] occ-env-med-l digest: March 30, 2018

OCC-ENV-MED-L Digest for Friday, March 30, 2018.

1. N&O, Sci-Am: NTP/FDA: [+]evidence of RF/cellphones cause CA in rats
2. Upcoming NORA Seminar: Friday, April 6, 2018, 1:00pm to 2:30pm EDT

Subject: N&O, Sci-Am: NTP/FDA: [+]evidence of RF/cellphones cause CA in rats
From: Gary Greenberg <gngreenberg@gmail.com>
Date: Thu, 29 Mar 2018 07:36:10 -0400
X-Message-Number: 1

[Mod: I don't see a link/reference to an actual publication. -G]

Can your cellphone cause cancer? Scientists find definitive link in study of rats.

BY JOHN MURAWSKI
jmurawski@newsobserver.com

http://www.newsobserver.com/news/business/health-care/article207112454.html
or https://goo.gl/BT3qKY

March 28, 2018 05:10 PM

Updated March 28, 2018 06:52 PM

RESEARCH TRIANGLE PARK

Cellphone radio-frequency waves can be decisively linked to cancer in rats, according to a national science panel meeting in Research Triangle Park on Wednesday. The scientists' finding establishes the clearest connection of cellphone risk to humans in a major U.S. study to date.

The scientists made their announcement at the end of a three-day meeting to review a $25 million rodent experiment conducted by the National Toxicology Center in RTP for the U.S. Food and Drug Administration. The draft of the study, issued in early February, had established a weak link in some cases, but the scientific advisory panel on Wednesday said the data is more compelling and indicates greater risk than initially acknowledged.

Wednesday's decision

is expected to change the debate over cellphone safety, and public health activists predict the results will increase pressure on federal agencies to issue safety warnings and tighten safety standards of the ubiquitous electronic device.

"It should most likely lead to a reduction in exposure limits," said Ronald Melnick, the National Toxicology Program scientist who designed the study before he retired nine years ago.

"This matters a lot because the agencies that will receive this data will make public health decisions based on this information," he said.

Melnick said the health risks acknowledged Wednesday should also compel public officials and telecom leaders "not to promote the use of some of these radio-frequency emitting devices for kids."

The original draft report was deemed inconclusive by the FDA and the American Cancer Society last month, and the scientific panel was expected by the activists to rubber-stamp those conclusions in Wednesday's meeting.

Before the scientists voted, Kevin Mottus, the outreach director of the California Brain Tumor Association, demanded from the floor that the entire panel recuse itself for lacking qualifications to assess radio-frequency data. Mottus later said that cellphones are comparable to asbestos and tobacco and should carry health warning labels.

But as the voting discussion got underway, the scientists began proposing motions to upgrade the findings to say that prolonged radio-frequency exposure can be clearly linked to heart tissue cancer in male rats. The study had previously said there was some link but not clear evidence.

The heart tissue cancers were particularly significant because they are a rare form of cancer that rarely occurs in rats and could not be explained as random illnesses.

The panelists also voted that the study shows some link between cellphone radiation and brain cancer in rats. The study previously said that link was equivocal, a scientific designation indicating it was inconclusive and arguably inconsequential.

In addition to showing an increase in cancers in rats, the study also showed that newborn rats weighed less and suffered higher death rates when living in a radio-frequency radiation chamber.
What's next?

The FDA's director of the office of science and engineering, Edward Margerrison, attended the meeting and warned against forming rash conclusions based on Wednesday's votes. "We're taking a responsible approach," he said. "We're not gonna knee-jerk on anything."

The FDA will translate the rodent findings to human health risks, and the Federal Communications Commission will decide whether the FDA conclusions are serious enough to warrant setting lower emissions standards for U.S. cellphones.

= -- = -- = -- = -- = -- = --

https://www.scientificamerican.com/article/new-studies-link-cell-phone-radiation-with-cancer/
 or https://goo.gl/FT4qsg
PUBLIC HEALTH
*New Studies Link Cell Phone Radiation with Cancer *
Researchers call for greater caution, but skeptics say the evidence from rat studies is not convincing
By Charles Schmidt on March 29, 2018 Does cell phone radiation cause cancer? New studies show a correlation in lab rats, but the evidence may not resolve ongoing debates over causality or whether any effects arise in people.

The ionizing radiation given off by sources such as x-ray machines and the sun boosts cancer risk by shredding molecules in the body. But the non-ionizing radio-frequency (RF) radiation that cell phones and other wireless devices emit has just one known biological effect: an ability to heat tissue by exciting its molecules.

Still, evidence advanced by the studies shows prolonged exposure to even very low levels of RF radiation, perhaps by mechanisms other than heating that remain unknown, makes rats uniquely prone to a rare tumor called a schwannoma, which affects a type of neuron (or nerve cell) called a Schwann cell.

The studies are notable for their sizes. Researchers at the National Toxicology Program, a federal interagency group under the National Institutes of Health, tested 3,000 rats and mice of both sexes for two years—the largest investigation of RF radiation and cancer in rodents ever undertaken in the U.S. European investigators at the Ramazzini Institute in Italy were similarly ambitious; in their recent study they investigated RF effects in nearly 2,500 rats from the fetal stage until death.

Also noteworthy is that the studies evaluated radiation exposures in different ways. The NTP looked at “near-field” exposures, which approximate how people are dosed while using cell phones. Ramazzini researchers looked at “far-field” exposures, which approximate the wireless RF radiation that bombards us from sources all around us, including wireless devices such as tablet and laptop computers. Yet they generated comparable results: Male rats in both studies (but not mice or female animals) developed schwannomas of the heart at statistically higher rates than control animals that were

not exposed.

Taken together, the findings "confirm that RF radiation exposure has biological effects" in rats, some of them "relevant to carcinogenesis," says Jon Samet, a professor of preventive medicine and dean of the Colorado School of Public Health, who did not participate in either study. Samet, however, cautioned the jury is still out as to whether wireless technology is similarly risky to people. Indeed, heart schwannomas are exceedingly rare in humans; only a handful of cases have ever been documented in the medical literature.

When turned on, cell phones and other wireless devices emit EF radiation continually, even if they are not being actively used, because they are always communicating with cell towers. The dose intensity tails off with increasing distance from the body, and reaches a maximum when the devices are used next to the head during phone calls or in front of the body during texting or tweeting.

Launched at the U.S. Food and Drug Administration's request 10 years ago, the NTP study dosed rats and mice of both sexes with RF radiation at either 1.5, 3 or 6 watts of radiation per kilogram of body weight, or W/kg. The lowest dose is about the same as the Federal Communications Commission's limit for public exposure from cell phones, which is 1.6 watts W/kg. The animals were exposed nine hours a day for two years (about the average life span for a rat), and the exposures were cranked up steadily as the animals grew, so the absorbed doses per unit body weight remained constant over time.

Initially leaked in 2016 <https://www.scientificamerican.com/article/major-cell-phone-radiation-study-reignites-cancer-questions/>, results from that $25-million study provided the most compelling evidence yet that RF energy may be linked to cancer in lab rodents. The strongest finding connected RF with heart schwannomas in male rats, but the researchers also reported elevated rates of lymphoma as well as cancers affecting the prostate, skin, lung, liver and brain in the exposed animals. Rates for those cancers increased as the doses got higher but the evidence linking them with cell phone radiation specifically was weak by comparison, and the researchers could not rule out that they might have increased for reasons other than RF exposure. Paradoxically, the radiation-treated animals also lived *longer* than the nonexposed controls. The study results were reviewed by a panel of outside experts during a three-day meeting that ended on March 26. They concluded there was "clear evidence" linking RF radiation with heart schwannomas and "some evidence" linking it to gliomas of the brain. It is now up to the NTP to either accept or reject the reviewer's conclusions. A final report is expected within several months.

Limited to rats only, the Ramazzini study tested three doses expressed as the amount of radiation striking the animal's bodies: either 5, 25 or 50 volts per meter. The exposure measures therefore differed from the absorbed doses calculated during the NTP study. But the Ramazzini scientists also converted their measures to W/kg, to show how the doses compared with RF limits for cell phones and cell towers set by the FCC and the International Commission on Non-Ionizing Radiation Protection; they ranged down to a 1,000 times lower. The exposures began when the rats were fetuses and continued for 19 hours a day until the animals died from natural causes.

As in the NTP study, Ramazzini investigators detected statistically elevated rates of heart schwannomas in male rats at the highest dose. They also had weaker findings linking RF exposure to cancer of glial cells in the brain, which were limited to females. Ronald Melnick, a retired NTP toxicologist who designed the NTP study, says a measure of consistency between the two studies is important, because "reproducibility in science increases our confidence in the observed results."

Just why Schwann and glial cells appear to be targets of cell phone radiation is not clear. David Carpenter, a physician who directs the Institute for Health and the Environment at the University at Albany, S.U.N.Y., explained the purpose of these cells is to insulate nerve fibers throughout the body. These are electrical systems, so that may be some sort of factor, he wrote in an e-mail. "But this is only speculation."

A few epidemiology studies have reported higher rates of tumors inside the skull among people who use cell phones heavily for 10 years or more. Of particular concern are benign Schwann cell tumors called acoustic neuromas, which affect nerve cells connecting the inner ear with structures inside

the brain. These growths can in some instances progress to malignant cancer with time. But other studies have found no evidence of acoustic neuromas or brain tumors in heavy cell phone users.

Samet adds a major challenge now would be to draw a biologically relevant connection between acoustic neuromas and other glial tumors in the brains of humans with Schwann tumors in rat hearts. "The mechanism is uncertain," he says. "There's a lot of information we still need to fill in."

Since 2011 RF radiation has been classified as a Group 2B "possible" human carcinogen by the International Agency on Cancer (IARC), an agency of the World Health Organization. Based on the new animal findings, and limited epidemiological evidence linking heavy and prolonged cell phone use with brain gliomas in humans, Fiorella Belpoggi, director of research at the Ramazzini Institute and the study's lead author, says IARC should consider changing the RF radiation designation to a "probable" human carcinogen. Even if the hazard is low, billions of people are exposed, she says, alluding to the estimated number of wireless subscriptions worldwide. Véronique Terrasse, an IARC spokesperson, says a reevaluation may occur after the NTP delivers its final report.

Stephen Chanock, who directs the Division of Cancer Epidemiology and Genetics at the National Cancer Institute, remains skeptical, however. Cancer monitoring by the institute and other organizations has yet to show increasing numbers of brain tumors in the general population, he says. Tracking of benign brain tumors, such as acoustic neuromas, was initiated in 2004 by investigators at the institute's Surveillance, Epidemiology and End Results program, which monitors and publishes statistics on cancer incidence rates. According to Chanock's spokesperson, the acoustic neuroma data "haven't accumulated to the point that we can say something meaningful about them."

Asked if brain cancer's long latency might explain why higher rates in the population have not appeared yet, Chanock says, "Cell phones have been around a long time. We are by no means dismissing the evidence, and the Ramazzini study raises interesting questions. But it has to be factored in with other reports, and this is still work in progress."

Epidemiology studies investigating cell phone use patterns with human cancer risk have produced inconsistent results. Some studies enrolled people who already had tumors with suspected links to RF radiation, such as gliomas, acoustic neuromas and salivary gland tumors. Researchers compared the self-reported cell phone use habits of the cancer patients with those of other people who did not have the same diseases. Other studies enrolled people while they were still healthy, and then followed them over time to see if new cancer diagnoses tracked with how they used cell phones. All the epidemiology studies, however, have troubling limitations, including that enrolled subjects often do not report their cell phone use habits accurately on questionnaires.

In a February 2 statement, Jeffrey Shuren, director of the FDA's Center for Devices and Radiological Health, wrote that despite the NTP study's results, the combined evidence on RF exposure and human cancer—which by now amounts to hundreds of studies—has "given us confidence that the current safety limits for cell phone radiation remain acceptable for protecting the public health." Chonock says that for him, evidence from the Ramazzini study does not alter that conclusion. "We continue to agree with the FDA statement," he says.

Subject: Upcoming NORA Seminar: Friday, April 6, 2018, 1:00pm to 2:30pm EDT
From: "Randolph, Susan" <susan.randolph@unc.edu>
Date: Thu, 29 Mar 2018 18:41:38 +0000
X-Message-Number: 2

Dear Colleagues,

Please see the information below about our upcoming NORA Seminar on Research in Human Systems Engineering on Friday, April 6, 2018, from 1:00pm to 2:30pm EDT.
We hope you can join us "live" via Zoom or watch the archive version of the seminar when available.

The slides and evaluation form are available by contacting Susan Randolph at susan.randolph@unc.edu

Future dates are unknown until after April 15, 2018 when I can request new dates.

Best,

Susan Randolph, MSN, RN, COHN-S, FAAOHN
Clinical Assistant Professor, OHN Program
Deputy Director, NC OSHERC

NC OSHERC | NORA Interdisciplinary Seminar Series

Proudly Presents...

NORA Interdisciplinary Seminar

Date: Friday, April 6, 2018

Time: 1:00pm to 2:30pm EDT, Please sign in 5-10 minutes early

Location: 133 Rosenau Hall, UNC/SPH (Live) or Webcast

Title: Research in Human Systems Engineering

Speaker: David Kaber
[https://osherc.sph.unc.edu/nora/images/kaber.jpg]<https://osherc.sph.unc.edu/nora/images/kaber.jpg>

David Kaber, PhD
Distinguished Professor of Industrial & Systems Engineering Director of Research for the Ergonomics Center of NC

North Carolina State University

If you are unable to attend the seminar on Friday, April 6, 2018, an archive link will be available shortly after the seminar so you can view it at your convenience.

Slides and an evaluation form are available by contacting Susan Randolph at susan.randolph@unc.edu

To access the seminar on Friday, April 6, 2018 at 1:00pm EDT, go to https://courses.sph.unc.edu/nc-osherc/ <http://courses.sph.unc.edu/nc-osherc/>

You will need to register for the seminar using this link. After you register, you will receive a personalized link to use for the Zoom webcast.

FOR CE CREDIT ONLY:
Due April 26, 2018
1.5 contact hours (0.15 CEU)

* Send your PID OR your Name, Date of Birth, Address, Phone number, and Email to create your PID
* Check for $10.00 payable to UNC
(put NC OSHERC on memo line)
* Completed evaluation form

CM POINTS (ABIH):

* This event contains 1.5 hours of technical contact time and may be eligible for ABIH CM credit. See the ABIH website for the CM credit criteria. NO FEE or PID Required for certificate of attendance.

Please forward to others you feel would be interested.
CLICK HERE<http://osherc.sph.unc.edu/nora/flier_noraseminar_kaber.pdf> for a flier that you can print off, post, and distribute to others.

For more information:
Susan A. Randolph, MSN, RN, COHN-S, FAAOHN

Clinical Assistant Professor, Occupational Health Nursing Program
Deputy Director, NC Occupational Safety and Health Education and Research Center
University of North Carolina at Chapel Hill
1700 Airport Road, CB #7502
Chapel Hill, NC 27599-7502
Phone: 919-966-0979
Fax: 919-966-8999
Email: susan.randolph@unc.edu<mailto:susan.randolph@unc.edu>

END OF DIGEST
